

Instructional Timeline – Kindergarten Mathematics – 3 rd Nine Weeks	
Unit 3A: Developing Number Sense Continued	
Suggested Time Frame: ≈ 2 weeks	
Introduction	The Instructional Timeline, as required by RRISD Local Board Policy (EG – Local, 246909), breaks down the content of each nine-week period into smaller, more manageable units of instruction.
Description	<p>Continuation of Unit K-2A. Prior to learning thinking strategies for basic addition and subtraction facts in first and second grades, students need to have mastered the prerequisite skills. In this unit, students will continue to learn prerequisite skills and they will continue to develop these skills in Unit 4C in the fourth nine weeks.</p> <p>Students will use concrete and pictorial models to create numbers to name quantities and to describe the number of objects in a set. They will justify their thinking verbally and through drawing. Students will explain their strategies, such as in the “Mathematician’s Chair,” rather than teacher modeling strategies. Students will display math concepts using concrete models in problem solving connected to everyday experiences.</p> <p>Students will continue to count and compare numbers.</p> <p>Students will demonstrate and practice their ability to subitize, or instantly recognize sets of objects (such as dots) in patterned arrangements, telling how many without counting. Students will develop their conceptual understanding of the relationships between the numbers 1-10 and the anchor numbers of 5 and 10 and will use five-frames and ten-frames in problem solving. Students will learn to count on and back two or three from any number, from 4 to 9, and will connect this with the concepts of “more than” and “less than.”</p> <p>Students will continue to develop their ability to conceptualize a number as being made up of two or more parts and their understanding of the part-part-whole model and related number relationships. They will also continue to use invented strategies and concrete objects to model and explore a variety of CGI problem types in real-world contexts to develop an understanding of the operations of addition and subtraction.</p>
TEKS/SEs taught during this period	<p>K.1 Number, operation and quantitative reasoning. The student uses numbers to name quantities.</p> <p>K.1A Use one-to-one correspondence and language such as more than, same number as, or two less than to describe relative sizes of sets of concrete objects.</p> <p>K.1B Use sets of concrete objects to represent quantities given in verbal or written form (through 20).</p> <p>K.1C Use numbers to describe verbally or in writing how many objects are in a set (through 20) using verbal and symbolic descriptions.</p> <p>K.4 Number, operation and quantitative reasoning. The student models addition (joining) and subtraction (separating).</p> <p>K.4A Model and create addition and subtraction problems in real situations with concrete objects.</p> <p>Ongoing – Using Math in the Real World</p> <p>K.6 Patterns, relationships, and algebraic thinking. The student uses patterns to make predictions.</p> <p>K.6B Count by ones to 100.</p> <p>K.11 Measurement. The student uses time to describe, compare, and order events and situations.</p> <p>K.11C Read a calendar using days, weeks, and months.</p>

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	<p>K.12 Probability and statistics. The student constructs and uses graphs of real objects or pictures to answer questions. K.12A Construct graphs using real objects or pictures in order to answer questions K.12B Use information from a graph of real objects or pictures in order to answer questions</p> <p>K.13 Underlying processes and mathematical tools. The student applies Kindergarten mathematics to solve problems connected to everyday experiences and activities in and outside of school. K.13A Identify mathematics in everyday situations. K.13B Solve problems with guidance that incorporates the processes of understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness. K. 13C Select or develop an appropriate problem-solving strategy including drawing a picture, looking for a pattern, systematic guessing and checking or acting it out in order to solve a problem. K.13D Use tools such as real objects, manipulatives, and technology to solve problems.</p> <p>K.14 Underlying processes and mathematical tools. The student communicates about Kindergarten mathematics using informal language. K.14A Communicate mathematical ideas using objects, words, pictures, numbers and technology. K.14B Relate everyday language to mathematical language and symbols.</p> <p>K.15 Underlying processes and mathematical tools. The student uses logical reasoning. K.15A Justify his or her thinking using objects, words, pictures, numbers, and technology.</p>
Generalizations	<ol style="list-style-type: none"> Counting tells how many things are in a set. Numbers are related to each other through a variety of number relationships. Numbers can be broken apart and put together in a variety of ways. Small whole numbers can be quickly recognized in patterned arrangements of dots. Computation problems can be solved in a variety of ways. Thinking strategies can be represented with physical models.
Essential Questions	<ul style="list-style-type: none"> How many things are in this set (displaying a set of items or a collection of dots)? Display sets of 4-9 items or dots and add one or two more (or remove one or two) and ask how many there are. How many different combinations for a particular number can you make using two parts (using manipulatives)? How many dots did you see? How did you see them? (Flash dot cards) Explain how you figured out the answer to this word problem. What can you tell us about (a number) looking at your frame? (using 5- and 10-frames) Show me what you are thinking (using manipulatives).
Core Components	<p>Teacher Note: Number concepts (see below), addition, and subtraction were introduced the 2nd nine weeks and are continued in this unit and also continues in the 4th nine weeks. You may wish to consider using higher numbers and more challenging problem types as you work through the 3rd and 4th nine weeks.</p> <p>Including Statements</p> <ul style="list-style-type: none"> Student uses and explains his or her strategies – rather than teacher modeling strategies

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added 10/19/10	<ul style="list-style-type: none"> ○ Modeling Addition and Subtraction – Modeling addition and subtraction by acting out
Recommended Lessons and Learning Experiences	<p>Explore a variety of problem solving situations in the various CGI problem types. (Link to example CGI problems)</p> <p>Note to Teacher: Use lessons and activities below that either were not used earlier or that need to be revisited to reinforce concepts and practice skills.</p> <p><u>More, Less, and Same</u></p> <p>Teaching Student-Centered Mathematics: Grades K-3, John A. Van de Walle (Look in Campus Library or order through i-Bistro District Library Catalog)</p> <ul style="list-style-type: none"> • “The Relationships of More, Less, and Same” – Discussion on pp. 37-38 • “Make Sets of More/Less/Same,” Activity 2.1, p. 38 and Figure 2.1 • “Find the Same Amount,” Activity 2.2, p. 38 and Assessment Note following, pp. 38-39; Blackline Master Dot Cards <p><u>Subitizing (Patterned Set Recognition):</u></p> <p>Teaching Student-Centered Mathematics: Grades K-3, John A. Van de Walle (Look in Campus Library or order through i-Bistro District Library Catalog)</p> <ul style="list-style-type: none"> • “Spatial Relationships: Patterned Set Recognition” - Discussion on pp. 43-44 and Figure 2.5 on p. 44 • Learning Patterns, Activity 2.8, p. 43 • Dot Plate Flash, Activity 2.9, p. 44 <p><u>Counting On and Counting Back:</u></p> <p>Teaching Student-Centered Mathematics: Grades K-3, John A. Van de Walle (Look in Campus Library or order through i-Bistro District Library Catalog)</p> <ul style="list-style-type: none"> • Up and Back Counting, Activity 2.4, p. 40 • Calculator Up and Back, Activity 2.5, p. 41 • Counting On with Counters, Activity 2.6, p. 41 • Real Counting On, Activity 2.7, p. 41 • One and Two More, One and Two Less” - Discussion on pp. 44-45 and Figure 2.5 on p. 44 • One-Less-Than Dominoes, Activity 2.10, p. 44 • Make a Two-More-Than Set, Activity 2.11, p. 45 • A Calculator Two-More-Than Machine, Activity 2.12, p. 45 <p><u>Five-Frame and Ten-Frame:</u></p> <p>Teaching Student-Centered Mathematics: Grades K-3, John A. Van de Walle (Look in Campus Library or order through i-Bistro District Library Catalog) Blackline Masters for Ten Frame and Five Frame</p> <ul style="list-style-type: none"> • “Anchoring Numbers to 5 and 10,” Discussion on pp. 45-46 • Five-Frame Tell-About, Activity 2.13, p. 46 and Figures 2.6 and 2.7 • Crazy Mixed-Up Numbers, Activity 2.14, pp. 46-47 • Ten-Frame Flash Cards, Activity 2.15, p. 47

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Breaking Numbers Apart and Putting Them Together (Decomposing and Composing):

Teaching Student-Centered Mathematics: Grades K-3, John A. Van de Walle (Look in Campus Library or order through [i-Bistro District Library Catalog](#))

- “Basic Ingredients of Part-Part-Whole Activities” and “Part-Part-Whole Relationships,” Discussion on pp. 47-49 and Figure 2.9
- Build It in Parts, Activity 2.16, pp 48-49 and Figure 2.8
- Two out of Three, Activity 2.17, p. 50
- Covered Parts, Activity 2.18, p. 50 and Figure 2.10
- Missing-Part Cards, Activity 2.19, p.50 and Figure 2.10
- I Wish I Had, Activity 2.20, p. 51
- Calculator Parts of 8 Machine, Activity 2.21

Dot Card Activities – to deepen thinking about numbers, patterns, counting, relationships

Teaching Student-Centered Mathematics: Grades K-3, John A. Van de Walle (Look in Campus Library or order through [i-Bistro District Library Catalog](#))

[Blackline Master Dot Cards](#)

- Double War, Activity 2.22, p. 53
- Dot-Card Trains, Activity 2.23, p. 53
- Difference War, Activity 2.24, p. 53
- Number Sandwiches, Activity 2.25, p. 53

Investigations

Unit 1: Who Is in School Today?

Introducing Counting Around the Circle pg. 33

Introducing the Counting Jar pg. 59-60

Assessment Checklist pg. 61

Unit 2: Counting and Comparing: Measurement and the Number System 1

Entire Unit

Mathematics TEKS Toolkit Clarifying Activities

[Number, Operations, and Quantitative Reasoning](#) – Scroll to activities for K.1B, K.1C, and K.4

Mathematics TEKS Toolkit Clarifying Lesson

[Using Numbers Everywhere](#) (This part may have already been used in Unit K-1A)

[Learning Centers List](#) (Use centers that are appropriate for your students at this time of year or modify as appropriate.)

Navigating through Numbers and Operations in PreK - Second Grade, NCTM (Find in Campus Library or order through [i-Bistro District Library Catalog](#))

- Choose a Number pg.16 – 18 - Modeling Numbers
- Counting in Different Ways pg. 19 – 20 – Pre-requisite for this lesson is counting from 1 to 100
- Ducks in a Line pg. 21 – 22 - Ordinal Numbers
- Frames pg. 47 – Five and Ten Frames [Blackline Masters for Ten Frame and Five Frame](#)

Engaged Activities

- Have students draw a numeral card from a pile and create a set of objects equal to the

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given numeral.

- Have students draw 3 numeral cards from a pile and create a set of objects equal to the given numerals. The child should name the pile of objects that is less than, more than, equal. You can roll a dice and do the same thing. For a challenge, roll two dice and add the numerals.
- Have students gather a set number of “materials” and pass them out to their table.
- Place number cards and pictures of objects in a pocket chart center. Have a student place a numeral card in the pocket chart. Then, place the corresponding number of picture cards next to the numeral. (Example: 5... next to the 5 are five pictures of cats... extend by having the child label 5 cats on an index card and place the index card in the pocket chart after the five cat pictures)

Calculator: Explorations: *Uncovering Math with Manipulatives and the TI-10* (Find in Campus Library or use link below.)

[Action Packed Stories pg.1-4](#)

enVision MATH

Topic 3: One to Five

- Lesson 1 Additional Activity: 38A
- Lesson 2: 39A
- Lesson 3 Additional Activity: 42A
- Lesson 4 Additional Activity: 44A
- Lesson 5: 45A
- Lesson 6: 47A
- Additional Activity may be a better option for this lesson: 48A
- Lesson 7: 49A
- Lesson 8: 51A

Note: Use the Interactive Lessons as a guide on how to teach/facilitate the activity or lesson chosen.

The Differentiated Instruction Lessons are a great resource for counting through movement.

Topic 4: More and Fewer

- Lesson 1 Visual Learning: 58
- Play the Advanced Game from Differentiated Instruction: 58C
- Lesson 2 Additional Activity: 60A
- Differentiated Instruction On Level and Advanced: 60C
- Lesson 3 Visual Learning: 62
- Lesson 3 Additional Activity: 62A
- Lesson 4 Visual Learning: 64A
- Additional Activity: 64A
- Lesson 5: 65A
- Lesson 6: 67A

Topic 5: Six and Ten

- Choose the Additional Activity and Differentiated Instruction Activities for each lesson and supplement as needed with the interactive lessons.
- Lesson 5: 83A
- Lesson 10: 93A
- Lesson 13: 99A

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	<p>Topic 6: Comparing Numbers</p> <ul style="list-style-type: none"> • Lesson 1: 107A • Lesson 3 Differentiated Instruction • Lesson 4-7: Additional Activities and Differentiated instruction Activities • Lesson 8 Differentiated Activity:122C
Differentiation	<p>English Language Proficiency Standards Student Expectations with Sentence Stems and Activities to support implementation of the Standards (Note: when you open the link, it may ask you for a certificate or if it is OK to open the file, click OK each time you see the screens.)</p> <p>Use Math TEKS Connections “Models and Representations” chart to modify level of difficulty</p> <p>Less Depth and Complexity:</p> <ul style="list-style-type: none"> ▪ Math TEKS Connections strategies from “Rapid Assessments” pg. 953, 956, 959, 961, 964 (see ARRC MTC file attachment) ▪ Describe relative sets: Create sets with more or less objects; more than, and same number of are usually understood before less than; continue modeling language in various contexts. Represent quantities in verbal/written form (through 20): If a child counts a set aloud and then responds with incorrect answer to “how many” it may be that the child can rote count but not understand that the last number stated names the set (cardinality) Try giving the child “6” blocks and saying “Here are 6 blocks. Give 6 blocks to a friend.” ▪ Small group and partner with peer model ▪ Small group time provided (pre-teach) ▪ Signal (EX: thumbs up/down) to share ideas or answers and to check for understanding ▪ Select answer from given choices ▪ Use pictures and hands on materials to explain vocabulary <p>More Depth and Complexity:</p> <ul style="list-style-type: none"> ▪ Math TEKS Connections strategies from “Rapid Assessments” pg. 953, 956, 959, 961, 964 (see ARRC MTC file attachment) ▪ Describe relative sets: Compare sets of objects that take up different amount of space; challenge student to count set of objects placed in a variety of positions; compare sets of objects that take up different amounts of space. Represent quantities in verbal/written form (through 20): If child begins to “see” sets of number without counting the set (subsidize) and displays understanding that a set of object remains the same even if in different positions; begin to consider moving beyond sets of 20 using base ten blocks ▪ Kidspiration ▪ Use concrete, pictorial and abstract models and representations ▪ Create own problems beyond grade level expectations ▪ Students use multiple strategies and explanations ▪ Small group (extension)
Instructional Resources	Round Rock ISD Elementary Mathematics Webpage
Assessment Resources	<p>Rapid Assessments</p> <p>See Assessment Note on pp. 53-54 in <i>Teaching Student-Centered Mathematics: K-3</i>, by John A. Van de Walle, regarding assessing students’ progress with number relationships (spatial representations, one and two more or less than, 5 and 10 anchors, and part-whole</p>

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	relationships). Access 4 Database